

## FINAL PRESENTATION

Study on the topic of "Social impact of online platforms with a focus on addiction risks"

July 04, 2025

# Agenda

Study on the topic of “Social impact of online platforms with a focus on addiction risks”

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Topic	Content
<b>1. Introduction</b>	<ul style="list-style-type: none"><li>• Introduction of the project team</li><li>• Focus areas of the study</li><li>• Facts, figures and basics of the study results</li></ul>
<b>2. Addictive mechanisms of digital services and their effects</b>	<ul style="list-style-type: none"><li>• Relevant definitions and subjects of the study</li><li>• Digital services in focus</li><li>• Addictive mechanisms of digital services and their effects</li></ul>
<b>3. Recommendations for action</b>	<ul style="list-style-type: none"><li>• Recommendations for measures to prevent the risk of addiction</li><li>• Questions and discussion</li></ul>

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1.

Introduction

# Introduction of the project team

Successful cooperation between Deloitte and the UKE Hamburg

## Deloitte.



**Martin Ritter**  
Project Partner



**Maria Chernyshov**  
Project Manager



**Alexandra Schimpf**  
Project Team



**Florian Schweitzer**  
Project Team

**Study on the social  
impact of online  
platforms with a  
focus on addiction  
risks**

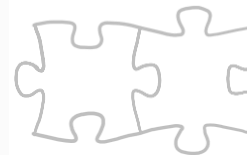


**Prof. Dr. med.  
Rainer Thomasius**  
Quality Assurance



**Priv.-Doz. Dr. med. Dipl.-Psych.  
Kerstin Paschke**  
Quality Assurance

- World's leading auditing and consulting firm
- Supporting customers with **technological** and **regulatory** issues
- Extensive experience with **Digital Services Act (DSA)\*** and related requirements

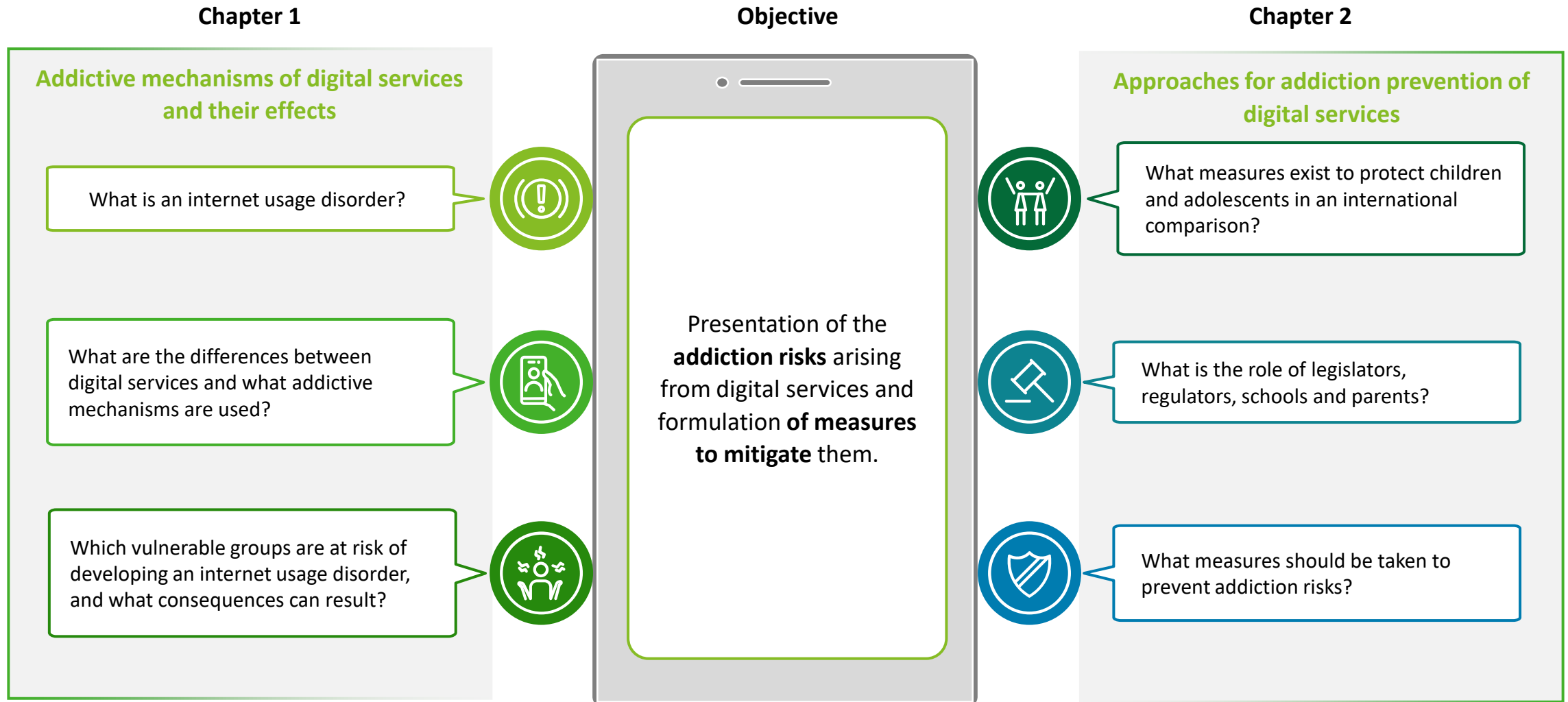


- **German Center for Addiction Research in Childhood and Adolescence** (German abbreviation: DZSKJ) at the University Clinic Hamburg-Eppendorf
- Focusing on addictions in childhood and adolescence
- Combining clinical care and scientific research

\*referred as Digital Services Act (DDG) at national level in Germany

# Focus areas of the study

The two chapters focus on the clinical background and the existing regulations



# Facts, figures and basics of the study

Evidence-based study involving different, interdisciplinary information and expert interviews



## Facts and figures of the study



**75** digital services examined

Evaluation of addiction-promoting mechanisms and preventively implemented measures



**40** cited publications

Meta-analyses, systematic reviews and original papers from various interdisciplinary fields



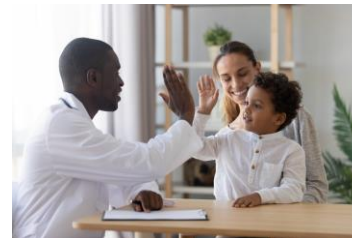
**38** analyzed international regulations

Identified various international approaches and highlighted best practices



**14** experts to discuss the results

Specialists in child and adolescent psychiatry and psychotherapy, psychologists, child and adolescent psychotherapists



**400** internet usage disorders treated annually

Among them are about 120 treatment cases with inpatient and 70 treatment cases with partial inpatient treatment at the DZSKJ

The background features a complex pattern of teal and green particles and lines, resembling a digital or neural network visualization. A white rectangular box with a thin grey border is positioned in the lower-left quadrant, containing the text.

2.

Addictive mechanisms of digital services and their effects

# Relevant definitions

Overview of the terminology for better comprehensibility of the study

## Digital services

### § 1 para. 4 no. 1 DDG

“Service normally provided for remuneration electronically at a distance and at the individual request of a recipient”

### Common understanding

Technological innovation and drivers of changes in communication, work and the economy

### Digital platform

Specific form of digital services that act as intermediaries between different groups of users

## Internet usage disorder

- **Collective term for various forms** of addiction-like or excessive use of the internet
- **Negative effects** in everyday life as a consequence
- Possible disorder with regard to e.g.: social media, digital games, pornography and shopping websites

## User engagement

- Refers to the **extent to which users interact with a digital service**
- State of active, **cognitive and emotional involvement** of users when interacting with a digital service
- Includes aspects such as attention, motivation and frequency of use

## Dark patterns

- **Manipulative design element** for intentional delusion and influence of users
- **Induces users to take certain actions** that are not in the best interest of users

## Experience flow

- **A state of intense concentration and absorption in an activity** in which time seems to fly by
- Mechanisms of digital services use knowledge of behavioral psychology to extend the length of usage

# Overview of the digital services in the focus of the study

Analysis of the relevant digital services with regard to the development of an internet usage disorder

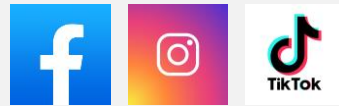
Digital services show a variety of offers that are specifically tailored to various **user needs** and **target groups**. Taking into account the current research results, **certain services are particularly relevant for the development of an internet usage disorder**



Digital games



Social media



Pornography websites



Online gambling sites



Video streaming platforms



Messenger services and blogs



Auction and shopping websites



Illustrative presentation of providers/ services in the respective segment

## Addictive mechanisms of digital services

The use of digital services bears various risks of addiction, which are enhanced by a variety of factors and mechanisms

*These mechanisms contribute significantly to the development and intensification of addiction risks. They specifically address the psychological and social needs of users and influence behavior.*



### Monetary Mechanisms

Promote financial transactions by increasing users' willingness to pay through various incentives



### Social Mechanisms

Utilize social comparison processes, peer influences and social norms. User behavior is controlled to intensify interactions



### Temporal Mechanisms

Serve to maximize the time spent by users. Encourage regular use or incentivize high-frequency interaction

# Addictive Mechanism No.1: Monetary Mechanisms

Promoting financial transactions and increasing the willingness of users to pay



## Goal:

Maximizing the revenue of the service operators

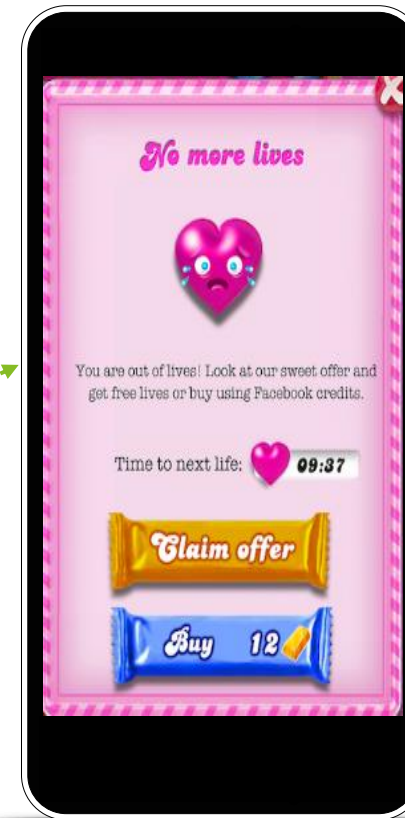
## Background:

- Increasing importance of advertising revenue
- Involving users more to drive financial transactions
- Psychological mechanisms promote desired behavior through emotions and reward experiences

## Examples:

- Skip waiting times or tasks for payment through **pay-to-skip models**
- Introduction of **virtual currencies** to acquire **game benefits** or **rewards**
- Activation of special functions in **premium accounts**, e.g. Spotify

## Virtual Currency & Pay-to-Skip



## Implications for users

*As soon as users buy virtual currencies, advantages can be acquired in the game or the flow experience is optimized:*

- Possibility to continue playing directly
- Creation of a direct incentive by, e.g. omission of advertisement
- Involvement of third parties such as friends and family

# Addictive Mechanism No.2: Social Mechanisms

Intensification of user engagement through social pressure

## Goal:

Control of user behavior through social comparison processes, peer influences and social norms

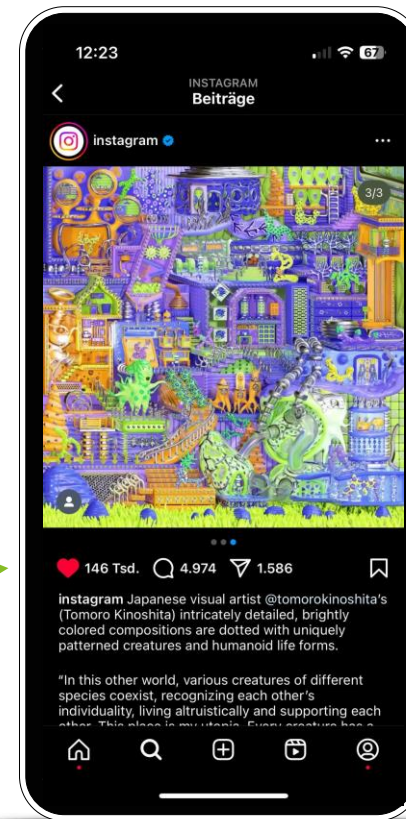
## Background:

- **Social obligations** and mechanisms encourage the interaction and dissemination of the services
- **Personalized avatars and accounts** strengthen the bond by adapting to (idealized) self-image
- Social mechanisms use the **influence of friends** and social obligations

## Examples:

- **Peer pressure and social norms** arise, e.g. in the association of players in guilds at WOW
- **Unconscious spam** through game invitations, e.g. Fortnite
- **Rankings/high scores** create competition, e.g. likes on Instagram
- AI-based chatbots enable bonds to virtual characters, e.g. CharacterAI

## Social rating on Instagram



## Implications for users

*A social comparison creates pressure and enables:*

- A public vote on desirable attributes, values and norms
- The generation of a value over the range
- Real-time content tracking

# Deep Dive: Risks of AI Chatbots

## Character.AI as an example

### What is an AI avatar?

- A **digital character** powered by AI (mainly LLMs)
- Designed to appear **human-like** and **build emotional connections**

### Risks and impact on users

- **Emotional attachment** to AI avatars (risk of parasocial relationships)
- **Increased risk of manipulation** and exposure to disinformation (**AI/LLM Poisoning**)
- AI may invent facts or reinforce false beliefs (**Hallucinations & confirmation bias**)
- Increasingly **used to manage psychological distress** (therapy substitute)

### Facts & figures

- **62% of German adolescents use AI**—mainly for schoolwork (65%), entertainment (52%), and information seeking (43%)\*
- AI can **foster trust and closeness**—regardless of perceived human or machine source\*\*

### Business model & core issues

- **Keeps users engaged** by speaking positively and confirming their views
- Especially **targets children's attention**, which may be **monetized**
- **Paywalls** may indicate financial interests (e.g. Character.AI)

### Popular Character AI Chatbots



**Stray kids Deutsch**  
By @CreativeSnowdrop43  
Neuntes Mitglied, Neu, kennenlernen, fremd  
49.0k



**Julien Bam**  
By @ms\_targaryen\_  
\*Ju sitzt auf einem Stuhl in der Küche. Ein Laptop war vor ihm aufgeklapt, offensichtlich...  
256.0k



**High school football**  
By @Mck\_593  
\*your at a high school football game, your in middle school and your friends, Lila, Xavier,...  
17.1m

\*Source: JIM Study 2024

\*\*Source: ACM Digital Library 2024

# Addictive Mechanism No.3: Temporal Mechanisms

Maximize time spent on the service and increase engagement

## Goal:

Maximizing the time spent on the service and forcing spontaneous decisions

## Background:

- **Daily or spontaneous incentives** encourage regular interactions
- Temporal mechanisms **create an artificial urgency** and force a timely and ill-considered reaction
- **Design elements** direct the user specifically to specific content, such as a timer

## Examples:

- **Play by appointment**, by logging in to daily or weekly events
- **Infinite scroll and autoplay** lower the inhibition threshold for doom scrolling like TikTok and Netflix
- **Countdown timers** and **availability indicators** create an artificial urgency, as e.g. with Temu
- **Daily rewards** through **gamification** in mobile games

## Rewards for interaction



## Implications for users

*Daily rewards create the need for a daily interaction:*

- Influencing interaction frequency and duration
- Additional motivation through the reward system
- Creation of pressure in the absence of interaction

## Focus on internet usage disorder

There is an urgent need for action due to the significant impact of internet usage disorder, especially on the lives of young people

### Vulnerable groups



- **Vulnerability to internet usage disorders varies**
- **Children and adolescents are particularly at risk due to limited impulse control**
- Personal characteristics promote vulnerability
- Connection with underlying psychiatric diseases
- Influence of socioeconomic status and family circumstances
- Increased risk among people with lower educational background

### Health and social consequences



#### Social impact

- Neglect of areas of life, performance deficiencies, social withdrawal and isolation
- Impairment of social skills, conflicts in the social environment

#### Psychological effects

- Increased stress, loss of control
- Accompanying illness (depression, ADHD, anxiety disorders, obsessive-compulsive disorders and sleep disorders)

#### Physical effects

- Visual disorders, obesity, orthopedic problems, sleep disorders

### Facts & figures children and young people



#### **86% of minors use social media on a daily basis**

Daily and several hours of use leads to **physical problems**

#### **24.5% of minors exhibit problematic use of social media**

Problematic usage leads to a significant frequency of **depressive symptoms, anxiety symptoms** and higher **stress levels**

#### **11.1% of minors show problematic use of digital games**

Leads to a **pronounced level of suffering** or a significant impairment in personal, social, professional areas

Source: DAK Study 2023/2024



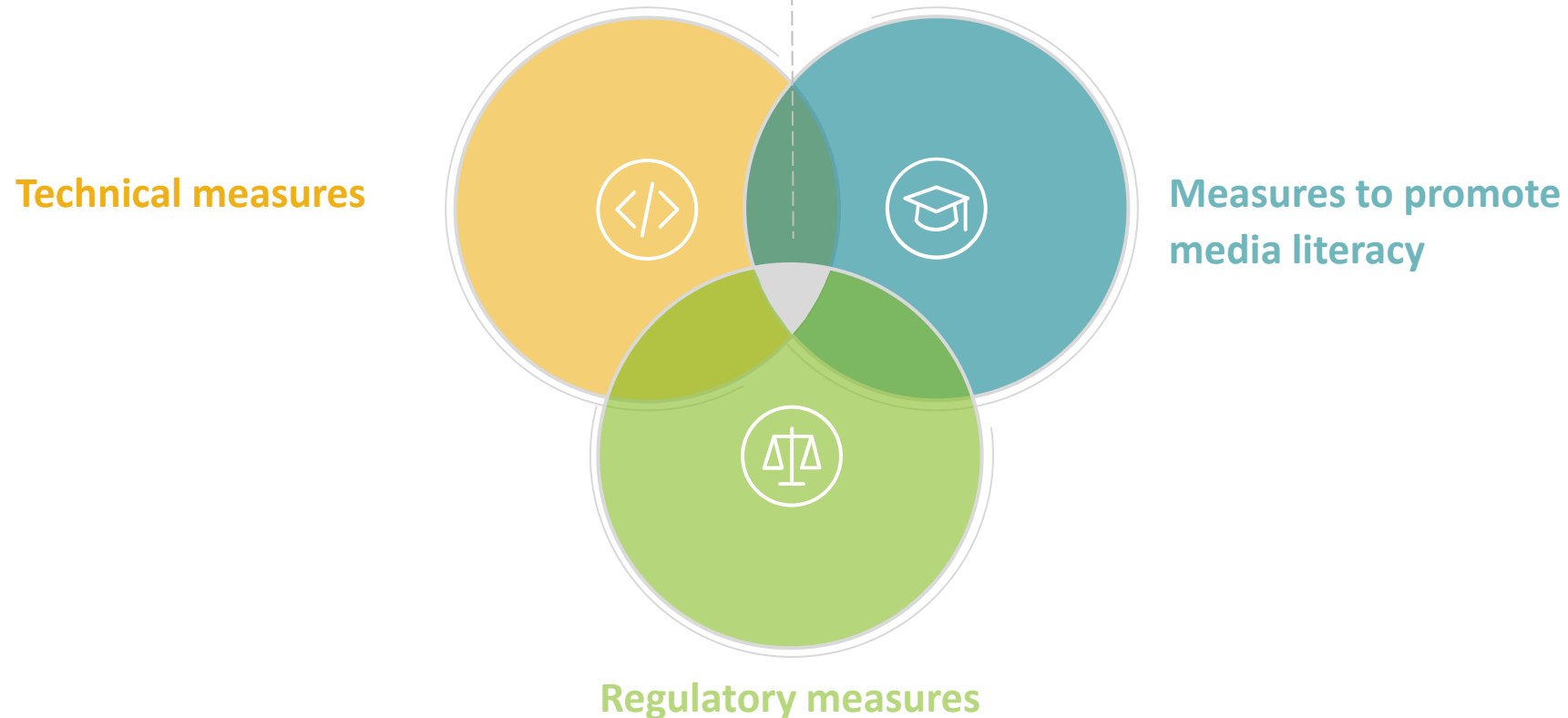
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Recommendations for measures

## Recommendations for measures to prevent the risk of addiction

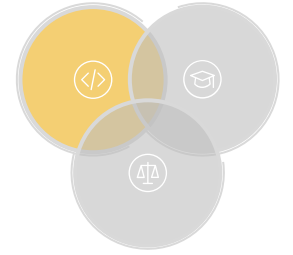
The study results have shown that for a holistic success, action measures must be taken in three dimensions

**“  
Only the combination of different measures leads to a long-term and effective improvement in addiction prevention  
”**



# Dimension No.1: Technical measures for the prevention of addiction risks

Effective age verification is the decisive cornerstone for the technical prevention of addiction risks



**1**

**Development of age verification standards**

Effective control or restriction of access to age-inappropriate content, regardless of the medium

**Implementation:**

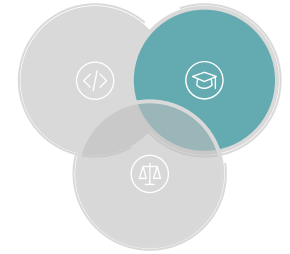
- Using existing technologies to verify users' age (e.g. facial recognition)
- Linking to official identification systems (e.g. eID card)

Highlighted by the experts of the **UKE**

<p><b>Restriction of in-app purchases for minors</b></p> <ul style="list-style-type: none"><li>☆ Use of age verification to prevent in-app purchases</li><li>• Effective parent accounts and parental shares that can't be bypassed</li></ul>	<p><b>Restriction of device and media usage times and locations</b></p> <ul style="list-style-type: none"><li>☆ Preventing the use of services at night</li><li>☆ Prevention of the use of smartphones (or e.g. social media) in school buildings/during school hours</li></ul>
<p><b>Mandatory review and deletion of inappropriate content</b></p> <ul style="list-style-type: none"><li>☆ Regulation and classification of addictive content</li><li>• Amendment of existing regulations</li></ul>	<p><b>Advanced protection against manipulative advertising</b></p> <ul style="list-style-type: none"><li>• Mandatory disclosure of which data is used to display advertising to minors</li><li>• Introduction of parental controls could also help reduce exposure to harmful products</li></ul>

## Dimension No.2: Improving media literacy to prevent addiction risks

Education about the correct handling and the risks associated with the use of digital services is an important component of prevention



1



### Promoting comprehensive education campaigns for parents

- ★ **Education** about the importance of controlled use of digital services and the dangers of disruptions of use
  - Support in the **effective further education of parents** in various formats (e.g. workshops, seminars, etc.)
- ★ **Multilingual offers** to effectively and effectively reach all parents

2



### Promotion and development of addiction prevention programs

- Provision of online resources and **support for those affected**
- ★ **Promoting research** and education on the causes and effects of internet usage disorders
- ★ Development of **evidence-based prevention strategies** to effectively combat Internet usage disorder

3



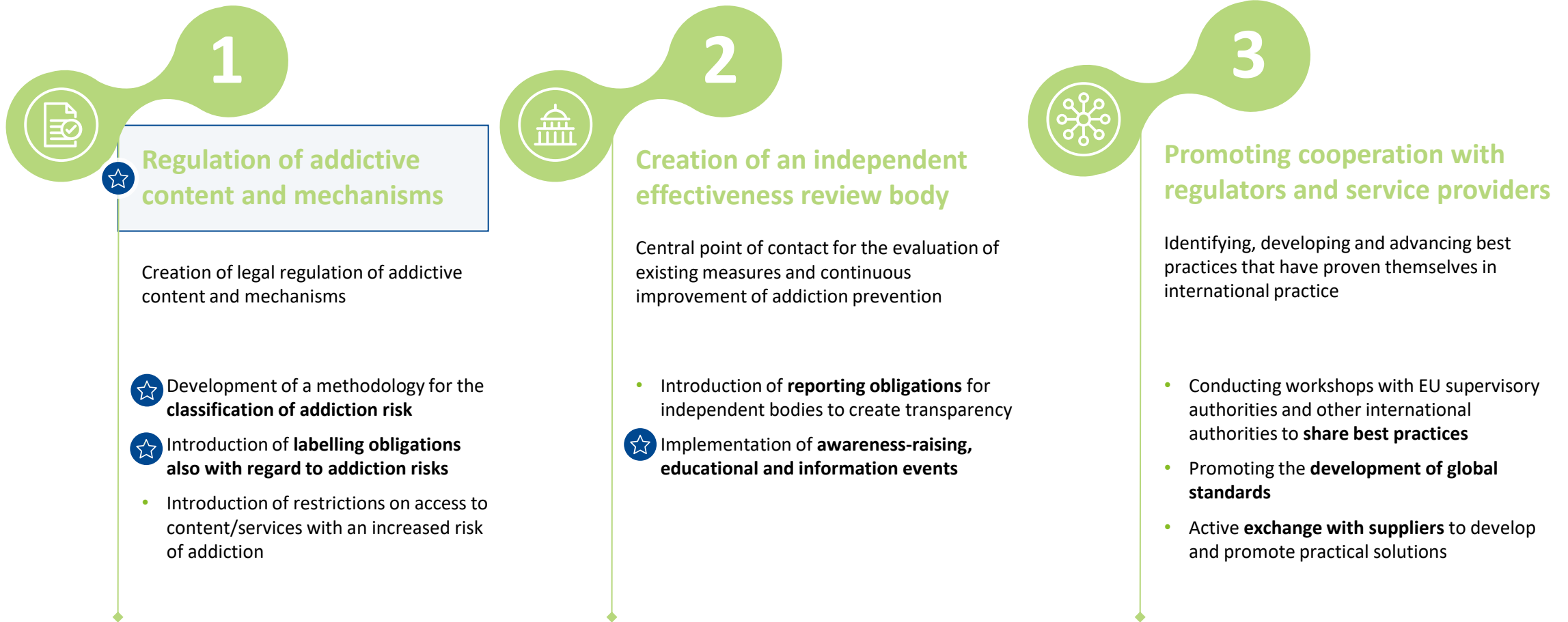
### Media literacy as part of the curriculum and teacher training

- ★ Promotion of **educational programs in schools** that teach the responsible use of digital media
- ★ Inclusion of media literacy training as a **mandatory part of a teacher training program** as well as **continuous further training**
  - Strengthening cooperation **with non-governmental organizations** specializing in the promotion of media literacy

★ Highlighted by the experts of the **UKE**

# Dimension No.3: Regulatory measures for the prevention of addiction risks

The legislator is able to set the direction for holistic prevention



★ Highlighted by the experts of the **UKE**

# Questions and discussion

We are happy to answer your questions



## Your contact persons

If you have any questions, please do not hesitate to contact us



**Deloitte.**

**Martin Ritter**  
Partner  
Strategy, Risk & Transactions

**Deloitte GmbH**  
Wirtschaftsprüfungsgesellschaft  
Kurfürstendamm 23  
10719 Berlin  
Germany

Mobile: +49 151 580 777 94  
maritter@deloitte.de

[www.deloitte.com/de](http://www.deloitte.com/de)



**Deloitte.**

**Maria Chernyshov**  
Senior Manager  
Strategy, Risk & Transactions

**Deloitte GmbH**  
Wirtschaftsprüfungsgesellschaft  
Erna-Scheffler-Straße 2  
40476 Düsseldorf  
Germany

Mobile: +49 151 126 837 41  
machernyshov@deloitte.de

[www.deloitte.com/de](http://www.deloitte.com/de)



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